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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,191	03/02/2004	Sang-Won Ha	053933-5063	2955

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EXAMINER	
TALBOT, BRIAN K	
ART UNIT	PAPER NUMBER
1762	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/790,191	HA ET AL.	
	Examiner	Art Unit	
	Brian K. Talbot	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 5-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 5-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/12/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/19/07 has been entered.

2. Claims 1-4 have been canceled. Claims 5-9 remain in the application.

3. In light of the amendment filed 1/19/07, the 35 USC 132(a) New Matter rejection and the 35 USC 112 first paragraph rejection have been overcome. However, the following new rejection has been asserted.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 6 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for coating the optical fibers by either dipping or roll coating, does not reasonably provide enablement for performing both coating processes. Also see Figs. 3b and 3c which depict each process but no figures depict the combination of the two coating processes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 103

6. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) further in combination with Ma et al. (6,865,307) still further in combination with Gochnour et al. (6,592,670).

Okayasu (6,257,771) teaches an optical/electrical hybrid wiring board and its manufacture. An optical fiber-embedded layer is provided as one layer of a multiple-layered electrical wiring board. The optical fiber embedded layer (25) is shown in Fig. 5. An adhesive material is applied to one side of the insulating sheet (22) to form an adhesive layer (23). Optical fibers are laid in a pattern on the adhesive (23). Upon completion of the fiber laying, a filler material (25A) is applied to form an embedded filler material with fibers.

Okayasu (6,257,771) fails to teach forming the fiber embedded structure by laying the fibers in a jig and dipping in epoxy to form the structure along with pressure and temperature.

Delbare et al. (5,253,310) teaches an optical coupling structure whereby a structure (8) with grooves (10) is utilized to hold optical fibers in a predetermined array prior to embedding the fibers with a liquid epoxy and curing (col. 4, line 50 – col. 5, line 30).

Noddings et al. (2003-0053770) teaches fabrication of optical devices and assemblies whereby optical fibers or waveguides are formed, cladding layer is applied, and the structure is encapsulated with an epoxy material. Pressure and temperature is used to for the structure. In Fig. 9, grooves (906) are formed in a substrate to hold the optical fibers (204) in place prior to the encapsulation material.

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Okayasu (6,257,771) process by incorporating a optical fiber holder as evidenced by Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) with the expectation of controlling the arrangement of the embedded fibers during the embedding process.

Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) fails to teach removing the fixing jig after embedding.

Ma et al. (6,865,307) teaches a similar process whereby optical fibers are embedded in epoxy by a molding mold and after embedding the molding mold is removed (abstract).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) process by incorporating a removing step of removing the jigs after embedding as evidenced by Ma et al. (6,865,307) with the expectation of achieving similar success.

While the Examiner acknowledges the fact that the prior art is silent with respect to the embedding process by dipping or rolling , it is the Examiner position that this process is a well known effective way to produce composite structures as is disclosed. The prior art teaches injecting the encapsulating material in a mold that would also produce the desired product. It is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving a similar product regardless of which conventional embedding means is utilized absent a showing of unexpected results. If Applicant disagrees, Applicant is invited to supply a showing of unexpected results and upon such a showing, the Examiner will reconsider his position regarding the obviousness of the coating technique utilized.

Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) further in combination with Ma et al. (6,865,307) fail to teach the fixing jig arranged at end portions of the optical fibers.

Gochnour et al. (6,592,670) teaches an apparatus for holding a printed circuit board for subsequent encapsulation of the board. The holder is depicted as covering the end portions of the circuit board (abstract and Fig. 1).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) further in combination with Ma et al. (6,865,307) optical fiber/circuit board manufacturing by using the holding apparatus of Gochnour et al. (6,592,670) with the expectation of achieving similar success, i.e. an encapsulated substrate.

While the Examiner acknowledges the fact that Gochnour et al. (6,592,670) fails to teach optical fibers in the circuit board, the other references teach this limitation. Therefore, the collective teachings of the art would suggest to one skilled in the art to utilized the holding mechanism of Gochnour et al. (6,592,670) to form the circuit board with optical fibers and that the holding mechanism would hold the fiber upon encapsulation to form the circuit board.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) further in combination with Yang et al. (6,489,012).

Features described above are incorporated here.

Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) fail to teach the use of attaching members on the prepreg prior to cladding.

Yang et al. (6,489,012) teaches adhesive means are interposed between a plurality of copper clad laminates and each of the adhesive means comprises a clad laminate and prepreg layer formed on both surfaces of the clad laminate. The use of the adhesive layer prior to the cladding layer reduces thickness variation and defects (abstract).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Okayasu (6,257,771) in combination with Delbare et al. (5,253,310) or Noddings et al. (2003-0053770) process by incorporating adhesive/cladding layers and pressing to form the circuit board with the expectation of achieving the advantages associated therewith as evidenced by Yang et al. (6,489,012).

Response to Amendment

7. Applicant's arguments with respect to claims 5-9 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that the prior art failed to teach a fixing jig whereby the optical fibers are held at the end portions by the fixing jig.

Gochnour et al. (6,592,670) teaches this limitations as detailed above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

B K Talbot 3/20/07

Brian K Talbot
Primary Examiner
Art Unit 1762

BKT